



BB

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
Art Unit 2154      Examiner Larry Donaghue

In Re: Stephen Melvin et al.  
Case: P3813  
Serial No.: 09/592,106  
Filed: 06/12/2000  
Subject: Method and Apparatus for Implementing Atomicity of Memory Operations in Dynamic Multi-Streaming Processors

To: The Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

RECEIVED

APR 16 2004

Technology Center 2100

Dear Sir:

**Information Disclosure Statement under 37 C.F.R. §1.97**

Enclosed herewith is an Information Disclosure Statement (IDS) by Applicant listing fifty-five (55) references. Under §1.98(d) no reference copies are required as they have been provided in priority application s/n 09/737,375. Applicant desires that the references be entered in the above-mentioned case as relevance dictates.

As this IDS is being filed with an RCE, in accordance with rule 1.97(b)(3), no additional fee is required. Please charge any deficiency or credit any overpayment to Deposit Account No. 50-0534.

Respectfully submitted,  
Stephen Melvin et al.  
by

  
Donald R. Boys  
Reg. No. 35,074

Central Coast Patent Agency, Inc.  
P.O. Box 187  
Aromas, CA 95004  
(831) 726-1457

BEST AVAILABLE COPY

APR 12 2004

JCB1  
24

PTO/SB/08A (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(Use as many sheets as necessary)*

Sheet

1

of

5

**Complete if Known**

|                      |                   |
|----------------------|-------------------|
| Application Number   | 09/592,106        |
| Filing Date          | 06/12/2000        |
| First Named Inventor | Stephen M. Ivin   |
| Art Unit             | 2154              |
| Examiner Name        | Larry D. Donaghue |

Attorney Docket Number

P3813

| U. S. PATENT DOCUMENTS |           |  |                                |  |   |
|------------------------|-----------|--|--------------------------------|--|---|
| Examiner Initials*     | Cite No.* | Document Number                          | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines, Where<br>Relevant Passages or Relevant<br>Figures Appear |
|                        |           | Number-Kind Code <sup>2</sup> (if known) |                                |  |   |
|                        |           | US- 5600837 A *                          | 02-04-1997                     | Artieri, Alain                                     |   |
|                        |           | US- 5461722 A *                          | 10-24-1995                     | Goto, Tatsuhiro                                    |   |
|                        |           | US- 5542088 A *                          | 07-30-1996                     | Jennings, Jr. et al.                               |   |
|                        |           | US- 5748468 A *                          | 05-05-1998                     | Notenboom et al.                                   |   |
|                        |           | US- 5745778 A *                          | 04-28-1998                     | Alfieri, Robert                                    |   |
|                        |           | US- 5867725 A *                          | 02-02-1999                     | Fung et al.  |   |
|                        |           | US- 5309173 A *                          | 05-03-1994                     | Izzi et al.  |   |
|                        |           | US- 5852726 A *                          | 12-22-1998                     | Lin et al.   |   |
|                        |           | US- 5713038 A *                          | 01-27-1998                     | Motomura, Masato                                   | RECEIVED APR 16 2004<br>Technology Center 2100                                  |
|                        |           | US- 5812811 A *                          | 09-22-1998                     | Dubey et al.                                       |   |
|                        |           | US- 5860017 A *                          | 01-12-1999                     | Sharangpani et al.                                 |   |
|                        |           | US- 5784613 A *                          | 07-21-1998                     | Tamirsa  |   |
|                        |           | US- 5511210 A *                          | 04-23-1996                     | Nishikawa et al.                                   |   |
|                        |           | US- 6119203 A *                          | 09-12-2000                     | Snyder et al.                                      |   |
|                        |           | US- 5649144 A *                          | 07-15-1997                     | Gostin et al.                                      |   |
|                        |           | US- 6061710 A *                          | 05-09-2000                     | Eickemeyer et al.                                  |   |
|                        |           | US- 6076157 A *                          | 06-13-2000                     | Borkenhagen et al.                                 |   |
|                        |           | US- 6029228 A *                          | 02-22-2000                     | Cai et al.   |   |
|                        |           | US- 5561776 B1 *                         | 10-01-1996                     | Popescu et al.                                     |   |

## FOREIGN PATENT DOCUMENTS

| Examiner Initials* | Cite No.* | Foreign Patent Document   | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines,<br>Where Relevant Passages<br>Or Relevant Figures Appear | T* |
|--------------------|-----------|---|--------------------------------|--|---|----|
|                    |           | Country Code <sup>3</sup> * Number <sup>4</sup> Kind Code <sup>5</sup> (if known) |                                |  |   |    |
|                    |           |   |                                |  |   |    |
|                    |           |   |                                |  |   |    |
|                    |           |   |                                |  |   |    |
|                    |           |   |                                |  |   |    |
|                    |           |   |                                |  |   |    |
|                    |           |   |                                |  |   |    |
|                    |           |   |                                |  |   |    |
|                    |           |   |                                |  |   |    |

|                    |                 |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

\* References not provided under § 1.98, filed in priority application 09/312,302

BEST AVAILABLE COPY



**Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.**

PTO/SB/08A (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

Substitute for form 1449/PTO

## **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

**(Use as many sheets as necessary)**

Sheez

2

5

|                          |                   |
|--------------------------|-------------------|
| <b>Complete if Known</b> |                   |
| Application Number       | 09/592,106        |
| Filing Date              | 06/12/2000        |
| First Named Inventor     | Steph n Melvin    |
| Art Unit                 | 2154              |
| Examiner Name            | Larry D. Donaghue |
| Attorney Docket Number   | P3813             |

**U. S. PATENT DOCUMENTS**

| U. S. PATENT DOCUMENTS |           |   |                                |  |   |
|------------------------|-----------|---|--------------------------------|--|---|
| Examiner Initials*     | Cite No.* | Document Number<br>Number-Kind Code, <sup>2</sup> if known) | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines, Where<br>Relevant Passages or Relevant<br>Figures Appear |
|                        |           | US- 6535905 B1 *  | 03-18-2003                     | Kalafatis et al.                                   |   |
|                        |           | US- 4200927 A *   | 04-29-1998                     | Hughes et al.                                      |   |
|                        |           | US- 5933627 A *   | 08-03-1999                     | Parady, Bodo                                       |   |
|                        |           | US- 5758142 A *   | 05-26-1998                     | McFarling et al.                                   |   |
|                        |           | US- 6016542 A *   | 01-18-2000                     | Gottlieb et al.                                    |   |
|                        |           | US- 5361337 A *   | 11-01-1994                     | Okin, Kenneth                                      |   |
|                        |           | US- 6308261 B1 *  | 10-23-2001                     | Morris et al.                                      |   |
|                        |           | US- 5946711 A *   | 08-31-1999                     | Donnelly, Stephen                                  | APR 16 2004   |
|                        |           | US- 5815733 A *   | 09-29-1998                     | Anderson et al.                                    |   |
|                        |           | US- 5987492 A *   | 11-16-1999                     | Yue, Kelvin  | Technology Center 2100  |
|                        |           | US- 6018759 A *   | 01-25-2000                     | Doing et al.                                       |   |
|                        |           | US- 6052708 A *   | 04-18-2000                     | Flynn et al.                                       |   |
|                        |           | US- 6212544 B1 *  | 04-03-2001                     | Borkenhagen et al.                                 |   |
|                        |           | US- 5546593 A *   | 08-13-1996                     | Kimura et al.                                      |   |
|                        |           | US- 5913049 A *   | 06-15-1999                     | Shiell et al.                                      |   |
|                        |           | US-   |                                |  |   |

RECEIVED

APR 16 2004

Technology Center 2100

## **FOREIGN PATENT DOCUMENTS**

**EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.<sup>1</sup> Applicant's unique citation designation number (optional).<sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).<sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.<sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible.<sup>5</sup> Applicant is to place a check mark here if English language translation is available.<sup>6</sup>

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

\* References not provided under §1.98, filed in priority application 09/312,302

BEST AVAILABLE COPY



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.  
Substitute for form 1449/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known

PTO/SB/08B (08-03)

Approved for use through 07/31/2006. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

RECEIVED

APR 16 2004

Technology Center 2100

Sheet 3 of 5 Attorney Docket Number P3813

### NON PATENT LITERATURE DOCUMENTS

| Examiner Initials* | Cite No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>2</sup> |
|--------------------|-----------------------|---|----------------|
|                    |                       | * FISKE et al., "Thread Prioritization: A Thread Scheduling Mechanism for Multiple-Context Parallel Processors", 1995, pp 210 -221, IEEE  |                |
|                    |                       | * YAMAMOTO, Wayne, "An Analysis of Multistreamed, Superscalar Processor Architectures", University of California Santa Barbara dissertation, December 1995, Santa Barbara, US   |                |
|                    |                       | * STEERE et al., "A Feedback - Driven Proportion Allocator for Real-Rate Scheduling", Third Symposium on Operating Systems Design and Implementation, February 1999, pp.145-158, USENIX Association   |                |
|                    |                       | * YAMAMOTO et al., "Increasing Superscalar Performance Through Multistreaming", 1995  |                |
|                    |                       | * TULLSEN et al., "Simultaneous Multithreading: Maximizing on-Chip Parallelism", 22nd Annual International Symposium on Computer Architecture, June 1995, Santa Margherita Ligure, Italy  |                |
|                    |                       | * YOAZ et al., "Speculation Techniques for Improving Load Related Instruction Scheduling", 1999, pp 42-53, IEEE   |                |
|                    |                       | * KESSLER, R.E., "The Alpha 21264 Microprocessor: Out-of-Order Execution at 600 Mhz", August 1998   |                |
|                    |                       | * YAMAMOTO ET AL., Performance Estimation of Multistreamed, Superscalar Processors, IEEE. 1994, pp 195-204, Hawaii, US  |                |
|                    |                       | * NEMIROVSKY et al., "Quantitative Study of Data Caches on a Multistreamed Architecture", Workshop on Multithreaded Execution Architecture and Compilation, January 1998  |                |
|                    |                       | * LI et al., "Design and Implementation of a Multiple-Instruction-Stream Multiple-Execution-Pipeline Architecture", 7th International Conference on Parallel and Distributed Computing and Systems, October 1995, Washington D.C.                               |                |

|                    |                 |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

\* References not provided under §1.98, filed in priority application 09/312,302

BEST AVAILABLE COPY



PTO/SB/08B (08-03)

Approved for use through 07/31/2006. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCEUnder the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.  
Substitute for form 1449/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known

RECEIVED

APR 16 2004

Technology Center 2000

Sheet 4 of 5 Attorney Docket Number P3813

## NON PATENT LITERATURE DOCUMENTS

| Examiner Initials* | Cite No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.                                       | T <sup>2</sup> |
|--------------------|-----------------------|---|----------------|
|                    |                       | * The PowerPC Architecture: A Specification for a New Family of RISC Processors, Second Edition, May 1994, pp 70-72, Morgan Kaufmann, San Francisco   |                |
|                    |                       | * MC68020 32-Bit Microprocessor User's Manual, Third Edition, 1989, pp 3-125, 3-126, and 3-127, Prentice Hall, New Jersey   |                |
|                    |                       | * POTEI, M.J., Real-Time Playback in Animation Systems, Proceedings of the 4th Annual Conference on Computer Graphics and Interactive Techniques, 1977, pp. 72-77, San Jose, CA   |                |
|                    |                       | * ARM Architecture Reference Manual, 1996, pp. 3-41, 3-42, 3-43, 3-67, 3-68, Prentice Hall  |                |
|                    |                       | * ESA/390 Principles of Operation, IBM Library Server, 1993 , Table of Contents and Para. 7.5.31 and 7.5.70 (available at : <a href="http://publibz.boulder.ibm.com/cgi-bin/bookmgr_OS390/BOOK/D29AR001/CCONTENTS">http://publibz.boulder.ibm.com/cgi-bin/bookmgr_OS390/BOOK/D29AR001/CCONTENTS</a> ) |                |
|                    |                       | * MC88110 Second Generation RISC Microprocessor User's Manual, 1991, pp. 10-66, 10-67 and 10-71, Motorola, Inc.   |                |
|                    |                       | * DIEFENDORFF, KEITH et al., Organization of the Motorola 88110 Superscalar RISC Microprocessor, IEEE Micro, April 1992, pp.40-63, Vol. 12, No. 2   |                |
|                    |                       | * KANE, GERRY, PA-RISC 2.0 Architecture, 1996, pp 7-106 and 7-107, Prentice Hall, New Jersey  |                |
|                    |                       | * DIEFENDORFF, KEITH et al., AltiVec Extension to PowerPC Accelerates Media Processing, March - April 2000, pp. 85-95, IEEE Micro, Vol. 20, No. 2   |                |
|                    |                       | * NEMIROVSKY ET AL., DISC: Dynamic Instruction Stream Computer, ACM, 1991, pp 163-171   |                |

| Examiner Signature | Date Considered |
|--------------------|-----------------|
|                    |                 |

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

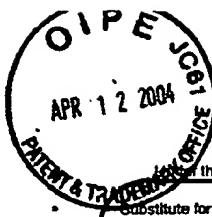
1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

BEST AVAILABLE COPY

\* References not provided under §1.98, filed in priority application 09/312,302



APR 12 2004

**Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.**

Approved for use through 07/31/2008. GPO: 2007-093

**U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE**

on a collection of information unless it contains a valid OMB control number.

PTO/SB/08B (08-03)

Substitute for form 1449/PTO

## **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 5 of 5 Attorney Docket Number P3813

## **NON PATENT LITERATURE DOCUMENTS**

RECEIVED

APR 16 2004

Technology Center 2100

|                               |  |                            |  |
|-------------------------------|--|----------------------------|--|
| <b>Examiner<br/>Signature</b> |  | <b>Date<br/>Considered</b> |  |
|-------------------------------|--|----------------------------|--|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

**1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.**

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

\* References not provided under § 1.98, filed in priority application 09/512,302